AMENDMENTS TO THE CLAIMS

1. (Currently amended) An image correction method comprising:

obtaining expected signals for an image-rendering device of each of a plurality of known reference colors;

obtaining detected signals by imaging a color image array under conditions similar to those occurring during user operation of ~~from~~ an image sensor ~~using a color image array~~, said detected signals being obtained for said plurality of known reference colors, said plurality of known reference colors including white, at least three primary colors, and at least two other non-primary colors;

determining an error measure, G_E, R_E, B_E, for each of said plurality of known reference colors, said error measure ~~representing a difference between said detected signals and said expected signals for each of said reference colors~~ being calculated by[[;]]

$$(Gn' - G_c)^2 = G_E$$

$$(Rn' - R_c)^2 = R_E$$

$$(Bn' - B_c)^2 = B_E$$

where Gn', Rn' and Bn' are expected color values, G_c, R_c and B_c are actual detected color values;

applying a weight factor to said error measure for each of said plurality of known reference colors to obtain a respective weighted error measure for each of said plurality of known reference colors; and

obtaining a color correction matrix by simultaneously reducing the weighted error measure for each of said plurality of known reference colors to obtain color correction for said plurality of known reference colors.

~~obtaining a color correction matrix by simultaneously minimizing each said respective error measure to obtain optimum overall correction for said plurality of known reference colors; and~~

~~applying said color correction matrix to an input image obtained using said image sensor with said color image array to provide color correction for each of said plurality of known reference colors to obtain a color corrected image from said input image.~~

2. (Canceled)

3. (Currently amended) A method as in claim [[15]]1 wherein the weight factor is multiplied by said error measure for each of the plurality of known reference colors to obtain the weighted error measure, and wherein the weight factor may have a different value for each of the plurality of known reference colors. ~~said color correction method comprises obtaining, for each of the plurality of known reference colors,~~

~~(Gn′ [what expect to see] – G_e [actual])^2 · W_i = G_E~~

~~(Rn′ – R_e)^2 · W_i = R_E~~

~~(Bn′ – B_e)^2 · W_i = B_E~~

~~where Gn′, Rn′ and Bn′ are expected color values, Ge, Re and Be are actual color values, and W_i is a weighting factor for each of colors i, i varying from 1-j colors, and minimizing GE, RE, and BE for each of the plurality of colors.~~

4. (Previously presented) A method as in claim 1 wherein there are at least seven reference colors.

5. (Previously presented) A method as in claim 1 wherein there are twenty-four reference colors.

6. (Currently amended) An image sensor apparatus, comprising:

~~an image rendering device;~~

an image sensor device, operating using a color filter array which provides color filtering such that colors transmitted to each pixel of a color image array of said image sensor device are converted to signals for all color components provided by said color filtering; and

an image processor arranged and configured to color-correct images obtained by said image sensor device according to a color correction matrix obtained by simultaneously <u>reducing</u> ~~minimizing~~ respective <u>weighted</u> error measures, each <u>of</u> said <u>weighted</u> error measure<u>s</u> ~~representing a~~ <u>being calculated by applying a weight factor to a squared</u> difference between signals seen for a known reference color from said color image array of said image sensor device and signals expected to be seen for said reference color, said color correction matrix being obtained according to at least the color white, three primary colors, and at least two additional non-primary colors.

7. (Currently amended) An apparatus as in claim 6 wherein said image processor is configured and arranged to obtain said color correction matrix [[is]] according to at least three primary colors, the color white, and at least three colors other than said three primary colors and white.

8. (Currently amended) An apparatus as in claim 6 wherein said color correction matrix is obtained according to twenty-four colors.

9. (Currently amended) An apparatus as in claim 6 wherein said ~~color correction matrix operates~~ weighted error measures are calculated according to

$$(Gn' \cancel{[\text{what expect to see}]} - G_c \cancel{[\text{actual}]})^2 \cdot W_i = G_E$$

$$(Rn' - R_c)^2 \cdot W_i = R_E$$

$$(Bn' - B_c)^2 \cdot W_i = B_E$$

where Gn', Rn' and Bn' are expected color values, G_c, R_c and B_c are actual color values, and W_i is [[a]] the weight[[ing]] factor for each of colors i, i varying from 1-j colors, and G_E, R_E, and B_E are reduced ~~minimized~~ for each of the plurality of colors.

10. (Canceled)

11. (Currently amended) An apparatus as in claim 9 wherein the weight factors for red, green, and blue are ~~weighted~~ higher than those of other colors.

12. (Previously presented) An apparatus as in claim 6 wherein said color correction matrix is obtained according to all colors of a chromaticity chart.

13. (Currently amended) A method of correcting an image from an image sensor including a color image array having a plurality of pixels, comprising:

obtaining signals expected to be seen for each of a plurality of known reference colors; and

obtaining a color correction matrix for said pixels, said color correction matrix being one which takes into account correction for at least the color white, three primary colors, and two other non-primary colors by simultaneously reducing ~~minimizing~~ error measures relative to each color, wherein respective error measures for said non-primary colors are weighted such that said color correction matrix corrects for some of said non-primary colors more than said primary colors, each error measure representing a squared difference between signals actually seen for a known reference color from said color image array and said signals expected to be seen for each of said reference outputs~~; and~~

~~applying said color correction matrix to obtain a subjectively color-corrected and white-balanced image directly from an input image obtained using said color image array~~.

14-15. (Canceled)

16. (Currently amended) A method as in claim [[15]]1, wherein higher weight factors are applied to colors including at least one of red, green, blue, human skin elements, and gray scale elements than are applied to other colors.

17. (Previously presented) An apparatus as in claim 9, wherein simultaneous equations are used to reduce ~~minimize~~ G_E, R_E, and B_E for each of the plurality of colors.

Claims 18-20. (Canceled)

21. (Currently amended) A method as in claim [[15]]1, wherein said weight factor is assigned to a respective color based on an impact on subjective image quality.

22. (Currently amended) An apparatus as in claim 9, wherein said weight[[ing]] factors W_i are assigned to a respective color based on an impact on subjective image quality.

23. (Previously presented) A method as in claim 1 wherein the detected signals are obtained for each of a plurality of color channels of said image sensor.

24. (Previously presented) A method as in claim 13 wherein the detected signals are obtained for each of a plurality of color channels of said color image array.

25. (New) The image correction method as in claim 1, further comprising applying said color correction matrix to an input image obtained using said image sensor with said color image array to provide color correction for each of said plurality of known reference colors to obtain a color-corrected image from said input image.

26. (New) The method as in claim 13, further comprising applying said color correction matrix to obtain a subjectively color-corrected and white-balanced image directly from an input image obtained using said color image array.